Analysis of Overseas Shipping Practices

May 1994

FOR

Department of Defense
Defense Logistics Agency
Executive Director
(Distribution)
Alexandria, VA 22304

INSIGHT THROUGH ANALYSIS

DORO

DLA-94-P30277

Analysis of Overseas Shipping Practices

May 1994

Mark Kleinhenz

DEPARTMENT OF DEFENSE
DEFENSE LOGISTICS AGENCY
Operations Research Office

c/o Defense General Supply Center
8000 Jefferson Davis Highway
Richmond, VA 23297-5082

O'Hare Internation Airport
P.O. Box 66422
Chicago, IL 60666-0422

DEFENSE LOGISTICS AGENCY
OPERATIONS RESEARCH OFFICE
DORO
c/o DEFENSE GENERAL SUPPLY CENTER
RICHMOND, VIRGINIA 23297-5082

FOREWORD

The "Analysis of Overseas Shipping Practices" is a study to determine whether shipping freight through the Military Traffic Management Command's Container Stuffing Activities (CSAs) for consolidation into seavans is more cost effective than the current practice of shipping freight through the Consolidation and Containerization Points (CCPs). Since DLA has entered the business of managing overseas transportation, the question of the best way to ship overseas surface freight has become an important issue. Based on FY 92 data, we found shipping DLA surface cargo to the CCPs to be more cost effective than if it were shipped to the CSAs.

The Resources Branch at Defense Depot Region East and the Production Management Branch at Defense Depot Region West were particularly helpful during the performance of this study. We express our sincere thanks to the members of these organizations and to the other individuals who contributed their knowledge, assistance, and time.

Gerald F. Wyngaard

GERALD F. WYNGAARD
Colonel, USAF
DLA Operations Research Office

EXECUTIVE SUMMARY

In March 1992 the Defense Logistics Agency (DLA) assumed control of all defense depots. This included assuming responsibility for moving freight beyond the continental United States to customers overseas. Formerly, each of the Military Services used its own Consolidation and Containerization Points (CCPs) to ship freight overseas. Now DLA has moved to concentrate CCP operations for all services into two CCPs, one on the East Coast and the other on the West Coast. This consolidation was designed to take advantage of the economies of scale that multiple service shipments would provide. However, there is concern about the cost effectiveness of using the CCPs to consolidate cargo for containerization in comparison with the possible alternative of sending cargo to the Military Traffic Management Command's (MTMC) Container Stuffing Activities (CSAs).

The purpose of this study was to determine whether shipping freight through MTMC's CSAs for consolidation into seavans is more cost effective than the current practice of shipping freight through the CCPs.

The scope includes all surface cargo shipped through the CCPs during FY 92 as well as surface cargo shipped by DLA consignors to the MTMC-managed CSAs. The surface cargo is general cargo, suitable for stuffing at a CCP; we excluded such freight as POVs, household goods, and major end-items.

Computations include the cost of inbound transportation to the stuffing activities and the cost of van-stuffing. Other factors considered were the time required to stuff shipping units in seavans and overseas unstuffing costs.

The results are based on 343,249 measurement tons of general cargo shipped overseas during FY 92. After computing inbound transportation cost and stuffing cost for both alternatives, we found the CCPs to be a more economical alternative than shipping through the CSAs. The overall cost difference is estimated at $2.6 million for 1 year for general cargo from DLA consignors, and the cost of the CCP-alternative is found to be $451,000 less in comparison to the cost of the baseline case (the current way DLA is doing business). These results are attributed to the lower cost of stuffing a seavan at a CCP and to a stockage policy that minimizes transportation cost by placing items shipped overseas at depots located near (or collocated with) the CCPs.

Other findings include a comparison of the average time to consolidate and stuff shipping units at a CCP with the averagetime to do the same at a CSA. We obtained an average stuffing time of 8.2 days for the CSAs using TERMS data for FY 92. Using Army Logistics Intelligence file data for CY 92, we found the average stuffing time at the CCPs to be 5.5 days. These statistics indicate that freight is processed more quickly at a CCP. One other result involved the cost of

unstuffing cargo overseas, which is a cost to DLA customers. We found DLA customers paid an estimated $948,000 in unstuffing costs when DLA general cargo was stuffed at a CSA but only an estimated $25,000 was paid for unstuffing when cargo was stuffed at a CCP. This can be attributed to the fact that CCP-stuffed vans are loaded by route plan for direct delivery to overseas customers. But CSA-stuffed vans are loaded to the overseas port and often the vans must be unstuffed and reloaded on local delivery vehicles for transportation to the customer.

These findings led to our conclusion that the CCPs are more cost effective for stuffing seavans than the CSAs for general cargo shipped by DLA. Shipment units are stuffed and shipped more quickly and customers pay considerably less overseas unstuffing costs when their freight is stuffed at a CCP. We recommend DLA send all its overseas general cargo through the CCPs.

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

LIST OF FIGURES

LIST OF TABLES

SECTION 1
INTRODUCTION

The Defense Logistics Agency (DLA) Operations Research Office (DORO) was tasked by DLA Material Management Transportation Group (MMDT) to determine whether shipping freight through the Military Traffic Management Command's (MTMC's) Container Stuffing Activities (CSAs) for consolidation into seavans is more cost effective than the current practice of shipping freight through the Consolidation and Containerization Points (CCPs).

1.1 BACKGROUND

In March 1992 DLA assumed control of all defense depots. In addition, DLA assumed responsibility for moving freight beyond the continental United States to customers overseas. This differs from DLA's former practice of moving overseas freight to the port of embarkation (POE) where the military services assumed responsibility for shipment overseas and payment of the transportation charges.

DLA moved to consolidate CCP operations for all services into two CCPs, one on the East coast and the other on the West coast. This was done to take advantage of the economies of scale multiple service shipments would provide. Such action was intended to increase cube utilization of each seavan and to drive down the unit cost of van-stuffing. But is there a more cost effective alternative to the CCP process?

A CCP is used to consolidate and containerize cargo. Almost all Department of Defense (DoD) general cargo going overseas by surface transportation is containerized and is no longer moved through breakbulk facilities. The trend in the steamship industry is to containerize because of the economic advantages of containers, i.e., less pilfering, easier handling, and increased cargo carrying capacity of container ships. Our analysis focuses on different ways to containerize cargo.

Besides computing the baseline case (or status quo) we considered two possible alternatives to consolidating and containerizing cargo at the CCPs. One alternative was direct source loading of containers. However, a recent study recommended that "direct source loading to overseas customers from the DLA depots not be considered at this time."[1]

---

[1] Cathy Arebalo, "Direct Shipments To Overseas Customers", DLA-93-P10228, November 1992, Defense Logistic Agency Operations Research And Economic Analysis Office, Cameron Station, Alexandria VA, 22304-6100, p. 8.

(The study tempered this recommendation by also suggesting that the concept of source loading be reevaluated after implementation of a stockage policy that concentrated stock in fewer depots.)

The report states that because DLA distributes stock from many depots to the same customers there is not sufficient stock at any one site to justify direct source loading. Therefore, we did not attempt to model this alternative. The other alternative was to ship DLA cargo to the MTMC-managed CSAs for consolidation and containerization.

The purpose of this work is to provide information to assist in deciding whether to continue to use the CCPs to consolidate and to stuff DLA cargo in seavans or whether it is more cost effective to route that cargo to the CSAs.

1.2 SCOPE

The scope of this study is defined by the following:

(1) Overseas surface freight.

(2) Shipment history data for a 1-year period (FY 92).

(3) General cargo.

(4) All cargo shipped through the CCPs is included.

(5) All cargo shipped by DLA-managed consignors through the CSAs is included.

(6) The cost analysis includes inbound transportation cost from the consignor to the stuffing activity and van-stuffing cost.

1.3 OBJECTIVES

To compute the inbound transportation and van-stuffing cost for the baseline case and the following two alternatives: routing all cargo to the CCPs, and routing that same cargo entirely through the CSAs.

1.4 ASSUMPTIONS

To accomplish the objectives of the study the following assumptions were made:

(1) Perfect freight consolidation at the depots for freight moving to the stuffing activities.

(2) A seavan incurred an unstuffing cost overseas if the seavan consignee was an overseas stuffing activity, managed by MTMC.

1.5 LIMITATIONS

The following limitations apply:

(1) The scope of the analysis does not include overseas air.

(2) Seavan-stuffing costs are based on direct costs.

(3) Only general cargo suitable for stuffing at a CCP is included, e.g., no major end-items, no household goods, no POVs.

SECTION 2
METHODOLOGY

Figure 2-1 shows how surface freight moves overseas. The depots (or consignors) send freight to the stuffing activity. There it is consolidated and containerized. The carrier moves the loaded seavan to the port of embarkation (POE). After being transported to the port of debarkation (POD) the seavan may move to the customer directly or via stopoff. Or the seavan may be transported to an unstuffing activity where it is unloaded and the freight is separated for pickup/delivery to the ultimate consignee.

For these transportation services, the Military Sealift Command bills the shipper on the basis of a composite rate. For example, there is one rate for containerized general cargo from the east coast to Europe that covers all transportation costs from the stuffing activity to the seavan's overseas destination. And the rate is the same regardless of the service requested, i.e., the rate is the same whether the seavan goes directly to the customer or whether it goes only as far as the POD. Because of the way that MSC bills for its services, transportation costs are, in general, the same from the stuffing activity onward, whether that activity is a CCP or a CSA. Therefore, we focused our analysis on the transportation cost and stuffing cost associated with the activities enclosed by the box in Figure 2-1. Besides computing the baseline case, our analysis includes two alternatives. The first alternative was to route all DLA general cargo through the CCPs; the second alternative was to route that same cargo through the CSAs.

2.1 COST MODELING

To do the cost modeling, we computed an inbound transportation and seavan-stuffing cost for the baseline case and for each alternative.

2.1.1 SEAVAN-STUFFING RATES

Seavan-stuffing rates for the CSAs can be found in the MTMC publication "Military Traffic Management Command Port Handling Billing Rates". These rates are published annually; we used the billing rates for FY 93, which are based on FY 92 costs and workload. But to obtain the seavan stuffing rates for the CCPs, we developed the rates from available cost and workload data for FY 92.

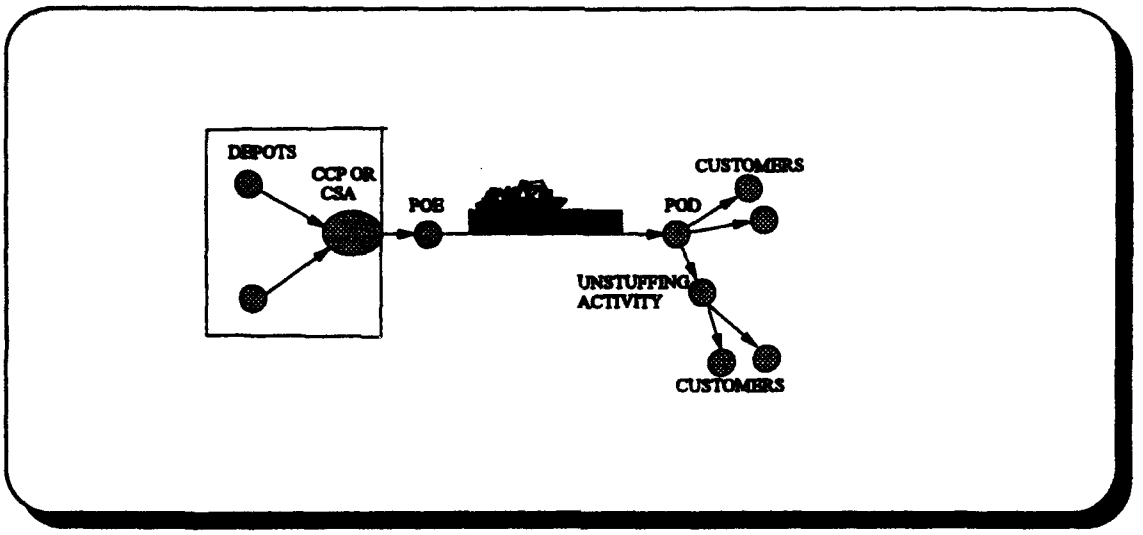

Figure 2-1. The Surface Overseas Movement of Containerized Cargo

2.1.1.1 CSA Seavan-Stuffing Rate

The seavan-stuffing rates, published in the "Military Traffic Management Command Port Handling Billing Rates", are not CSA-specific but composite rates obtained by combining all of the cost and workload data for an area. For example, the rate schedule does not show separate seavan-stuffing rates for the CSA at Military Ocean Terminal Bayonne NJ and the CSA at Norfolk VA. However, there are separate composite rates for the east coast and the west coast. The stuffing rate applies to general cargo; it includes such costs as: receiving, consolidation by port of debarkation (POD), loading the van, and documentation preparation. This rate does not include overhead, such as facilities maintenance, installation services, utilities, etc. Table 2-1 shows the stuffing rates we used. Rates are expressed per "measurement ton" (MTON). One MTON is defined as 40 cubic feet.

Area Command	Rate Per MTON
Eastern	$40.55
Western	$27.64

Table 2-1. CSA Stuffing Rates

2.1.1.2 CCP Seavan-Stuffing Rate

Two CCP stuffing rates had to be calculated: one for the CCP at Defense Depot Susquehanna, PA (DDSP-CCP) and one for the CCP located at Defense Depot Sharpe, CA (DDJC-CCP). The rates for both CCPs were obtained by combining cost data with workload data. We wanted to parallel those costs included in the CSA rates. Therefore we did not include overhead costs.

We requested personnel in Defense Distribution Region East's Resources Branch (DDRE-RB) to compute a seavan stuffing rate. At DDRE a cost accounting system is in place to capture CCP costs. Because DDSP-CCP is recognized as an identifiable cost center, the cost data on CCP operation is recorded in the monthly "Obligations Report (RCS 48)".[2] This report shows the costs charged to each cost center by object class (e.g. overtime, basic pay, supplies, etc...). Such costs charged to the CCP would cover: receiving, packing & sorting, staging, stuffing seavans, supplies, documentation preparation and other direct costs. We emphasize that costs charged to the CCP cost center are direct costs only.

To compute a DDSP-CCP stuffing rate, workload data is also required. Workload data is based on the amount of cube packed into seavans by the CCP. The MTMC Terminal Management System (TERMS) file was used to supply this information to DDRE-RB. The TERMS file contains historical data on all DoD surface freight shipped overseas. Besides stuffing seavans the CCP builds and ships pallet loads going to Air Line of Communication (ALOC) customers. Based on weight percentage, DDRE-RB allocated 67.6 percent of the costs charged to the CCP cost center to van-stuffing and the remainder to the ALOC operation.[3]

The cost per MTON was derived by dividing the van-stuffing portion of the direct cost by the total MTONs stuffed during the same time period.

To compute a stuffing rate for DDJC-CCP, we requested personnel in Defense Depot Region West's Production Management Branch (DDRW-TMP) to gather cost and workload data. Using current cost data, they computed an average monthly cost for CCP van-stuffing operations.[4] Labor cost is based on full time equivalent personnel assigned to the CCP. Additional labor cost was included for personnel working in shipment planning and documentation preparation. The labor cost included benefits. Supply costs were added.

---

[2] As of September 1993, this report at DDSP-CCP has been replaced by the "Expense Report".
[3] DDRE-RB Interoffice Memorandum, 4 Apr 94. Subject: Review of Briefing, "Analysis of Overseas Shipping Practices".
[4] DDRW-TMP Interoffice Memorandum, 25 Feb 94. Subject: Cost of Van Stuffing for Overseas Shipment.

Because these costs were based on the timeframe December 1993 through January 1994, it was necessary to apply price deflators to convert those dollars to FY 92 dollars. The price deflators we used are for compensation to civilian personnel working in the DoD. Our price deflator factors were obtained from the Bureau of Economic Analysis, Department of Commerce. To be consistent with our method for obtaining a rate for DDSP-CCP, we extrapolated the average monthly cost to 1 year. Then we used workload data from TERMS for all of FY 92 to calculate a stuffing rate by dividing the annual direct cost by total MTONs. Table 2-2 shows the stuffing rates computed for the CCPs.

CCP	Rate Per MTON
DDSP-CCP	$33.45
DDJC-CCP	$23.73

Table 2-2. CCP Stuffing Rates

It must be pointed out that stuffing rates are very dependent on workload. For example, when DDSP-CCP picked up the mission of the Warner Robins CCP in FY 93 its workload increased significantly to 159,737 MTONs. The effect was to drive the DDSP-CCP rate down to $25.72 per MTON in FY 93. This rate is very similar to the DDJC-CCP rate of $24.45 per MTON for the same timeframe.

2.1.2 INBOUND TRANSPORTATION

Inbound transportation costs were computed by building shipments from the TERMS data and rating those shipments based on weight and the distance from the consignor to the stuffing activity.Shipments were built by aggregating the shipment units by: consignor (origin), stuffing activity (destination) and shipdate.

If the aggregated weight was 70 pounds or less we assumed the shipment was sent parcel post. We used United Parcel Service rates to cost these shipments. All other shipments were assumed to be going as freight. A mileage was attached to each shipment based on the distance between the consignor's 3-digit zipcode and the stuffing activity's 3-digit zipcode. By obtaining both weight and mileage figures for each shipment, we rated the freight shipments using Guaranteed Traffic Rates (GT).

We had a problem with TERMS historical data for cargo stuffed at the CCPs. The data field in the record identifying the consignor had been written over with the CCP's own Department of Defense Activity Address Code (DoDAAC). We could not identify the origin of the freight

consolidated at the CCPs. The consequence of this was that we were unable to build shipments and calculate the transportation cost for those individual shipments to the CCPs.

We worked around this difficulty in the following manner. With 1 year's worth of DLA Material Release Order (MRO) data (requisition history data), we built shipments to the CCPs and rated them using GT rates. The results were converted into an aggregate rate per pound to apply to all freight being shipped to the CCPs. In the same way, we developed a rate per pound [illegible]argo moving to each of the CSAs. Appendix A shows the rates developed from DLA MR[illegible]es. An adjustment to the total weight consolidated at the CCPs had to be made to account for the fact that freight originates at the collocated depots (Defense Depot Sharpe CA, Defense Depot New Cumberland PA). Failure to make this adjustment would result in overestimating the inbound transportation cost to the CCPs. Using Army Logistics Intelligence File (ALIF) data for CY 1992, we identified all surface MROs originating at the collocated depots and going to the CCP for consolidation into seavans. After we subtracted the MRO weight from the total weight consolidated at a CCP, we applied the transportation rates developed. (See Appendix A)

2.2 OTHER FACTORS

Two other factors were considered. These were the time required to consolidate and stuff shipping units and seavan unstuffing cost.

2.2.1 STUFFING TIME

Stuffing time represents the period of time between the arrival of the shipping unit at the stuffing activity and its departure to the POE. We believe this factor to be important since it is an indicator of customer service and possible savings through inventory reductions. The stuff-time was computed for each shipping unit packed by subtracting the receipt date at the CSA from the consolidation date at the CSA. This time difference was averaged over all shipping units. To compute the CCPs' stuff-time it was necessary to use data from the ALIF. TERMS does not capture this data for shipping units stuffed at the CCPs. ALIF data was from CY 1992. For each MRO we subtracted the CCP receipt date from the CCP ship date and we averaged these times over all observations.

2.2.2 UNSTUFFING COST

When seavans are shipped to breakbulk points instead of directly to the customer, customers pay an unstuffing cost. It is the cost to cover the additional handling of unloading a seavan and breaking out the individual shipping units for pickup/delivery to the ultimate consignees. This is a cost to DoD - not a cost specific to DLA. We identified shipments going to breakbulk points using the consignee DoDAAC of the seavan. If the consignee of the seavan was an overseas terminal managed by MTMC then we assumed the seavan would be unstuffed there. [illegible]endix B lists the DoDAACs where we assumed unstuffing rates would apply.

The unstuffing cost is based on measurement tons and unstuffing rates. The overseas unstuffing rates are published in the Military Traffic Management Command Port Handling Billing Rates. Those unstuffing rates are reproduced in Table 2-3.

Geographical Region	Rate per MTON
Europe	$41.19
Pacific	$ 9.19
Caribbean	$28.15

Table 2-3. Overseas Unstuffing Rates

2.3 DATA ANALYSIS

The study is based on data from the TERMS file for FY 92. Data selected included all records with document identifier codes having either a 'TJ4', indicating hazardous cargo, or 'TX4', indicating cargo not otherwise specified. These codes identify the shipment units consolidated into seavans. We selected commodities representing general cargo, suitable for stuffing at a CCP. Table 2-4 lists the types of commodities and associated volumes. The commodity descriptions are from MILSTAMP, Appendix F-20.

Commodity	MTONS
Chemicals	12,764
POL items (Not Bulk)	9,073
Subsistence (Not chill or freeze)	10,041
Miscellaneous items	235,665
Lumber and logs (less than 35 ft)	3,895
Vehicle parts	22,910
Aircraft parts	1,736
Construction materials	661
Metal products (less than 35 ft)	15,100
Boats/boxed vehicles (less than 35 ft)	195
Small arms, inert components, haz items	746
Drugs and sundries	3,888
Machinery and parts (less than 35 ft)	13,428
Paints and varnishes	4,073
Instruments and apparatus	9,041
Antisubmarine equipment (buoys, nos)	33
Total MTONS	343,249

Table 2-4. General Cargo Stuffed In Seavans

The scope of the analysis includes 8 CSAs, managed by MTMC and 2 CCPs, managed by DLA. Table 2-5 shows these activities and the cargo actually stuffed at each one during FY 92. We emphasize the data for the CSAs include only general cargo originating from DLA consignors. Analysis of TERMS data indicates general cargo from DLA consignors represented approximately 32 percent (by volume) of all the general cargo stuffed by the CSAs in FY 92. Besides DLA, consignors included the Military Services, GSA, and others.

Activity	MTONS	Weight
Nav Supp Ctr, Norfolk VA	49,912	35,547,505
Mil Ocean Term, Bayonne NJ	12,003	8,842,932
So Atlantic Outport, Charleston SC	25	40,626
Cape Canaveral Outport, FL	102	100,413
Gulf Outport, New Orleans LA	3,979	2,905,576
So Calif Outport, Compton CA	342	194,696
Mil Ocean Term, Oakland CA	39,830	33,580,277
Pacific No West Outport, Seattle WA	11,476	8,633,582
CSA Subtotal	117,669	89,845,607
CCP New Cumberland, PA	114,508	73,928,349
CCP Sharpe, CA	111,072	57,030,073
CCP Subtotal	225,580	130,958,422
Total	343,249	220,804,029

Table 2-5. Stuffing Activities

SECTION 3
FINDINGS

The following results were obtained for the cost comparison, the stuffing time analysis and the analysis of the cost of overseas unstuffing.

3.1 COMPARISON OF INBOUND TRANSPORTATION AND SEAVAN-STUFFING COSTS

The results of our comparison of inbound transportation and seavan stuffing costs are summarized in Figure 3-1. The results are based on 343,249 MTONs. The baseline (the way DLA is currently doing business) shows that we estimate DLA's costs for inbound transportation and stuffing seavans to total $19.1 million. When all DLA general cargo is routed to the CSAs, the total cost is estimated at $21.3 million. When all DLA general cargo is routed to the CCPs, the total cost is estimated at $18.7 million. The scenario of routing all DLA cargo to the CCPs is estimated to be $2.6 million less annually than routing all DLA general cargo to the CSAs and $451,000 less than DLA is paying, as shown in the baseline case.

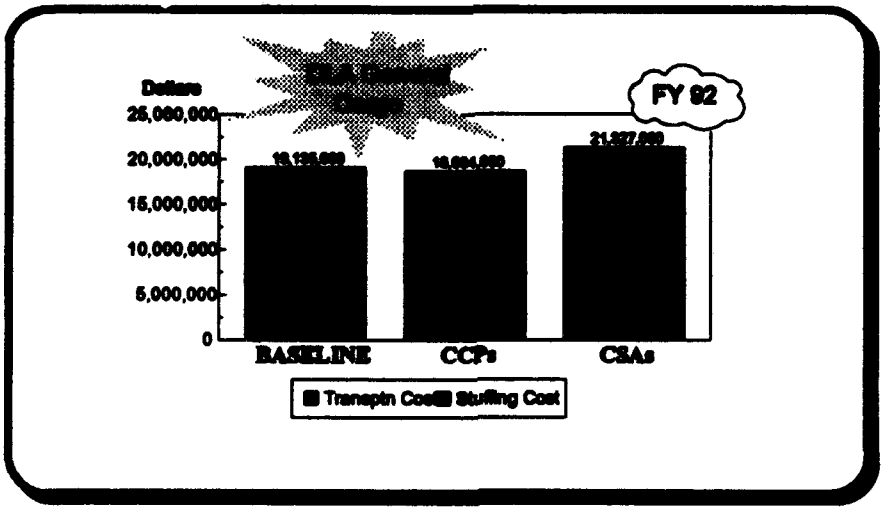

Figure 3-1. Direct Cost Comparison Between CCPs And CSAs.

Why are the CCPs more cost effective? We find the difference in total cost is due to the difference in the cost of stuffing seavans. And our findings show very little difference in the inbound transportation cost among the three alternatives. We believe the principal reason for this result is that a significant percentage of the freight stuffed is stocked at depots either geographically near or collocated with the CCPs. Table 3-1 shows where DLA cargo stuffed at the CSAs in FY 92 originated.

Consignor	MTONS	Percent
Def Depot Mechanicsburg PA	11,334	9.6
Def Depot Tobyharna PA	9,962	8.5
Def Depot Letterkenny	385	0.3
Def Depot Tracy CA	14,921	12.7
Def Depot Sharpe CA	10,353	8.8
Def Depot Oakland CA	2,056	1.8
Def Depot Tracy - Alameda site	956	0.8
Subtotal	49,967	42.5
All Others	67,702	57.5
Total	117,669	100

Table 3-1. Where CSA-Stuffed General Cargo From DLA Originated

The table shows approximately 42.5 percent of DLA general cargo actually stuffed at the CSAs in FY 92 originated from depots geographically close to the CCPs. The proximity of those consignors to the CCPs would serve to minimize inbound transportation cost if their cargo were rerouted.

To determine how much cargo actually stuffed at the CCPs in FY 92 originated at the collocated depots, we used the ALIF. After analyzing the ALIF data, we developed Table 3-2. It shows 29.1 percent of the freight originated at the collocated depots. This freight would not incur an inbound transportation cost for stuffing at the CCPs. But it would if rerouted to the CSAs.

Origin	Weight	Percent
Def Depot New Cumberland PA	29,758,000	22.7
Def Depot Sharpe CA	8,356,000	6.4
All Others	92,844,422	70.9
Total	130,958,422	100.0

Table 3-2. How Much Freight For Seavans Originated At The Depots Collocated With The CCPs

3.2 COMPARISON OF STUFFING TIMES

Stuffing-time results for the CSAs were computed from TERMS data for FY 92, based on 59,415 shipment units (records having document identifier codes 'TX4' or 'TJ4'). The stuffing-time results for the CCPs were computed from ALIF data for CY 92, based on 404,969 MROs. Table 3-3 summarizes those results. The 50th percentile (median) indicates half of the shipment units were in the stuffing activity for that number of calendar days or less. For example, 50 percent of the MROs handled at the CCP required 5 days or less to be consolidated, stuffed and shipped. And the 75th percentile indicates 75 percent of the MROs were in the CCP 7 days or less. Overall, the average stuffing time for the CCPs was 5.5 days and the average for the CSAs was 8.2 days, with 0 being the fewest days and 30 being the most days.

Stuffing Activity	25th Percentile	50th Percentile	75th Percentile	Average
CCPs	2	5	7	5.5
CSAs	2	7	13	8.2

Table 3-3. Comparison of Stuffing Times (All Figures Are In Days)

3.3 OPERATIONAL DIFFERENCES

CSAs are port-to-port operations, consolidating freight by POD. Often this will require the seavan to be unstuffed by local contractors when it arrives at the POD and the contents separated for pickup/delivery to the ultimate consignee. This is an additional handling cost. But the CCPs consolidate by customer DoDAAC. This method promotes the consolidation of cargo into throughput vans that move directly to the customer without incurring additional handling charges. Or if there is not sufficient cargo for a throughput van the CCP will create a load plan to sequence load two or more customers' cargo so that the freight can be delivered by the carrier via stop-offs. Again, no unstuffing costs are incurred.

How much did DLA customers pay for unstuffing costs in FY 92? Figure 3-2 summarizes the results based on stuffing activity. More than 97 percent of unstuffing costs paid by DLA customers can be traced to cargo stuffed at the CSAs. When the freight is stuffed at the CCPs, results indicate very little freight is shipped to the unstuffing activities. We show in Table 3-4 a breakdown on where the estimated unstuffing costs occurred.

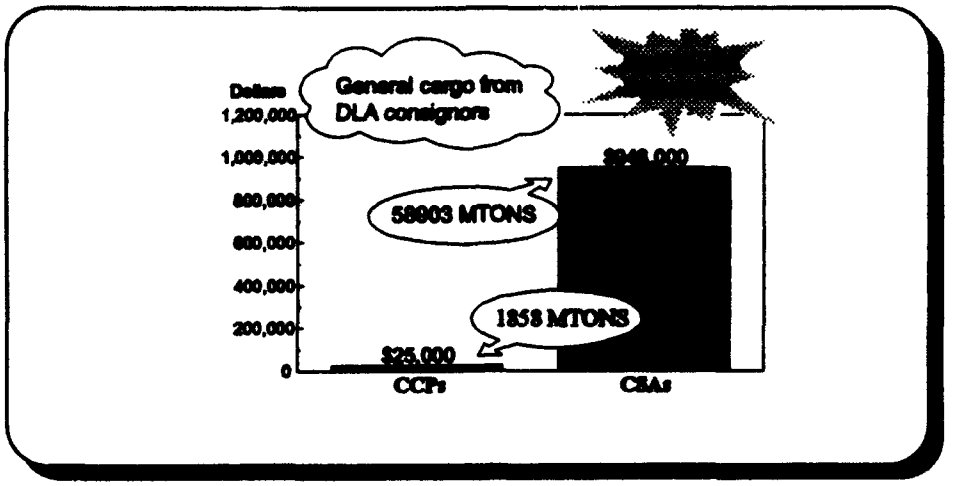

Figure 3-2. Comparison of Unstuffing Costs

Seavan Consignee	MTONS	Unstuffing Cost
Mannheim GE Terminal DET Rhine Riv	6,457	$265,964
Pusan KS BBP Terminal	8,465	$77,793
Okinawa Container BBP Terminal	7,589	$69,743
San Juan PR Terminal	3,867	$108,856
Balboa PN Terminal	2,494	$70,206
Felixstowe UK BBP Terminal	733	$30,192
Bremerhaven GE Terminal	1,740	$71,670
Pusan KS Container BBP Terminal	911	$8,372
Guam Marianas Is US Nav Supp Depot	5,728	$52,640
Yokosuka JA US Naval Supply Depot	4,821	$44,305
Yokohama JA Container BBP Terminal	6,814	$62,621
Pearl Harbor HI Naval Supply Depot	10,897	$100,143
Piraeus GR Terminal	215	$8,856
Izmir TK Terminal	30	$1,236
Total	60,761	$972,597

Table 3-4. Estimated Unstuffing Costs

One other operational difference is that CCPs have sortation and packaging capabilities. This allows the CCPs to receive small package transshipments and to sort and consolidate them by DoDAAC, packing them into larger shipping units, e.g., triwalls. The effect of this is to reduce handling at the seavan stuffing site, and at the customer's receiving site. In contrast, cargo is expected to be properly packaged for loading into vans when it arrives at the CSA. The CSA does not consolidate small packages into larger shipping units. And they package material only when it arrives not properly prepared for loading into a seavan. When this happens, the contractor packages the material and bills the shipper for this additional service.

SECTION 4
CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS AND RECOMMENDATIONS

Our findings indicate that the CCPs are more cost effective by an estimated $2.6 million for shipping DLA's general cargo than the CSAs. And routing all DLA general cargo to the CCPs is more cost effective ($451,000 annually based on FY 92 workload) than the current way DLA is doing business. We believe stock positioning near the CCPs contributes to their cost effectiveness by reducing inbound transportation costs. In addition, the stuffing rates at the CCPs are lower. We found that the CCPs stuff cargo (on average) 2.7 days more quickly than the CSAs. And because of the way the CSAs consolidate cargo to a port of debarkation rather than by load plan, we estimate DLA customers paid an estimated $948,000 in unstuffing costs for DLA cargo sent overseas during FY 92. Based on these findings we recommend DLA route all its general cargo to the CCPs.

APPENDIX A

AVERAGE TRANSPORTATION RATE PER POUND TO SHIP FROM DLA DEPOTS TO STUFFING ACTIVITIES

APPENDIX A
AVERAGE TRANSPORTATION RATE PER POUND TO SHIP FROM DLA DEPOTS TO STUFFING ACTIVITIES

Destination (Stuffing Activity)	Rate Per Pound ($/lb)[1]
New Cumberland PA CCP	$0.0618
Sharpe CA CCP	$0.0586
Military Ocean Terminal Bayonne NJ	$0.0887
Naval Supply Center Norfolk VA	$0.0253
So Atlantic Outport Charleston SC	$0.0490
Cape Canaveral Outport FL	$0.0670
Gulf Outport New Orleans LA	$0.0984
So Calif Outport Compton CA	$0.1405
Military Ocean Terminal Oakland CA	$0.0547
Pacific No West Outport Seattle WA	$0.0639

[1] Based on FY 92 DLA Material Release Order Data

APPENDIX B

OVERSEAS TERMINALS WHERE MTMC UNSTUFFING RATES APPLY

APPENDIX B

OVERSEAS TERMINALS WHERE MTMC UNSTUFFING RATES APPLY[1]

DoDaac	Activity
WT4JHM	Pusan KS BBP Terminal
WK4F48	Mannheim GE Terminal Det Rhine River
WT6JHX	Okinawa JA Container BBP Terminal
WT5JH6	Yokohama JA Container BBP Terminal
W81FER	San Juan PR Terminal
W80YEN	Balboa PN Terminal
WK4F42	Bremerhaven GE Terminal
WK2EX1	Felixstowe UK BBP Terminal
W80QP7	Pusan KS Container BBP Terminal
N61119	Guam Mariana Is US Naval Supply Depot
N62649	Yokosuka JA US Naval Supply Depot
N00604	Pearl Harbor HI Naval Supply Center
WK0NWJ	Piraeus GR Terminal
WM1Q7H	Izmir TK Teminal

[1]This is not an exhaustive list.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	May 1994	Final

4. TITLE AND SUBTITLE

Analysis of Overseas Shipping Practices

5. FUNDING NUMBERS

6. AUTHOR(S)

Mark Kleinhenz

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Defense Logistics Agency
Operations Research Office (DORO)
c/o Defense General Supply Center
Richmond, VA 23297-5082

8. PERFORMING ORGANIZATION REPORT NUMBER

DLA-94-P30277

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

Department of Defense
Defense Logistics Agency
Executive Director
(Distribution)

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT

Public release; unlimited distribution

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 words)

This analysis addresses the issue of whether shipping freight to the Military Traffic Management Command's (MTMC) Container Stuffing Activities (CSAs) would be a more cost effective way for the Defense Logistics Agency (DLA) to containerize cargo for surface overseas movement than the current practice of shipping freight to the Consolidation and Containerization Points (CCPs). The study covers these three scenarios: the baseline case (or status quo), routing all DLA general cargo through the CCPs, and routing all cargo through the CSAs. The analysis includes the transportation cost from shipper to stuffing activity and the cost of seavan stuffing at that activity.

The results of the study are based on 343,249 measurement tons of general cargo from DLA shippers going overseas during FY 92. The major conclusion of the study is that it is cheaper for DLA shippers to send their cargo to the CCPs. When compared to the baseline scenario, routing all cargo to the CCPs was found to cost $451,000 less annually. When compared to the CSA scenario, routing all cargo to the CCPs was found to cost $2.6 million less annually. Principal reason given for the lower cost of the CCP scenario was cheaper van-stuffing rates at the CCPs.

14. SUBJECT TERMS	15. NUMBER OF PAGES
CCP, CSA, Seavan, Seavan-stuffing, Stuffing-activity, TERMS, Measurement Ton, Unstuffing, Containerization, Containers	35
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	